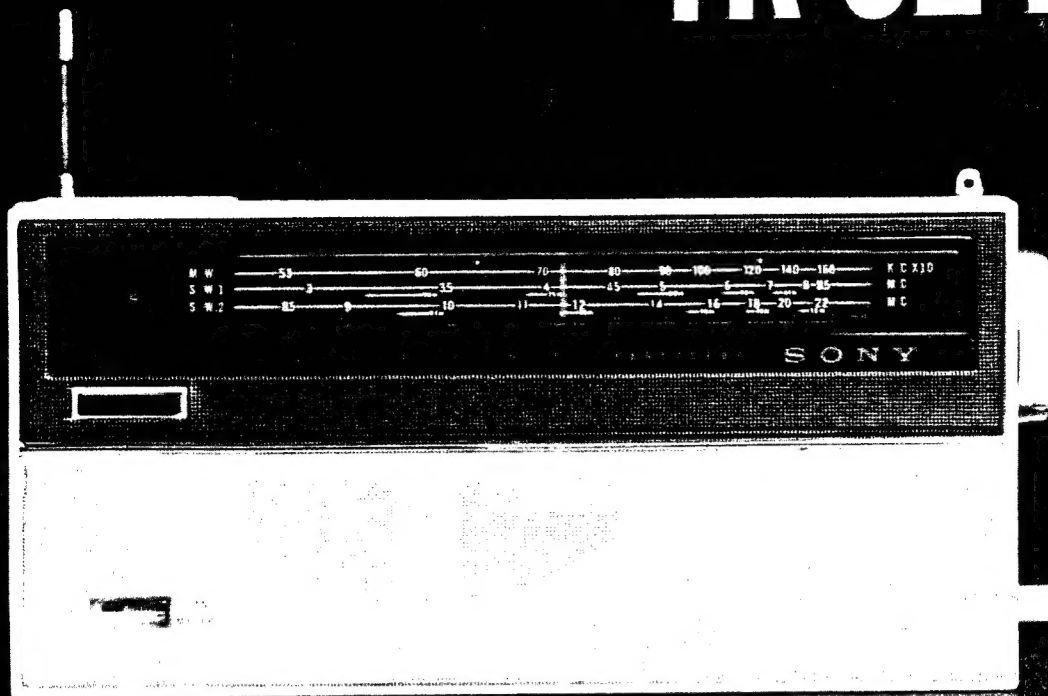


# TR-824



## Specifications

Circuit :	8 Transistor Superheterodyne
Frequency Coverage :	MW 530—1,605 Kc (566—187 m) SW <sub>1</sub> 3—8.5 Mc (100—35.3 m) SW <sub>2</sub> 8.5—22 Mc (35.3—13.6 m)
Intermediate Frequency :	455 Kc
Antenna System :	Built-in Ferrite Bar Antenna Built-in Telescopic Antenna
Maximum Sensitivity :	MW 30 dB (32 $\mu$ V/m) (at 10 mW Output) SW <sub>1</sub> 30 dB (32 $\mu$ V/m) SW <sub>2</sub> 36 dB (63 $\mu$ V/m)
Selectivity :	22 dB at 10 Kc off resonance, at 1,400 Kc
Output Power :	260 mW (undistorted)
Current Drain :	12 mA at zero signal, 140 mA at 260 mW output
Speaker :	4" $\times$ 2-1/2" (10 $\times$ 6.5 cm) PM Dynamic, 8 $\Omega$
Battery :	Three size "C" Flashlight Batteries (4.5 Volts)
Dimensions :	9-1/16" $\times$ 4-1/3" $\times$ 1-15/16" (230 $\times$ 110 $\times$ 49 mm)
Weight :	2.2 lbs. (1.0 Kg)

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## Adjustment and Alignment

### a) Frequency Coverage :

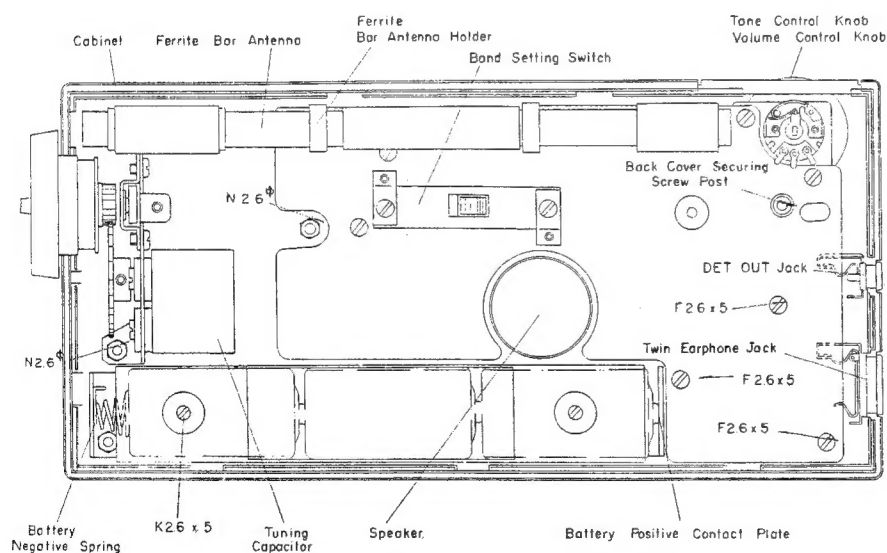
	Lower Limit	Adjust	Upper Limit	Adjust
MW	520 Kc	Core of MW OSC Coil (MW-O)	1,680 Kc	MW OSC Trimmer (C <sub>4-3</sub> )
SW <sub>1</sub>	2.90 Mc	Core of SW <sub>1</sub> OSC Coil (SW <sub>1</sub> -O)	8.60 Mc	SW <sub>1</sub> OSC Trimmer (C <sub>4-2</sub> )
SW <sub>2</sub>	8.40 Mc	Core of SW <sub>2</sub> OSC Coil (SW <sub>2</sub> -O)	22.4 Mc	SW <sub>2</sub> OSC Trimmer (C <sub>4-1</sub> )

### b) Tracking Alignment

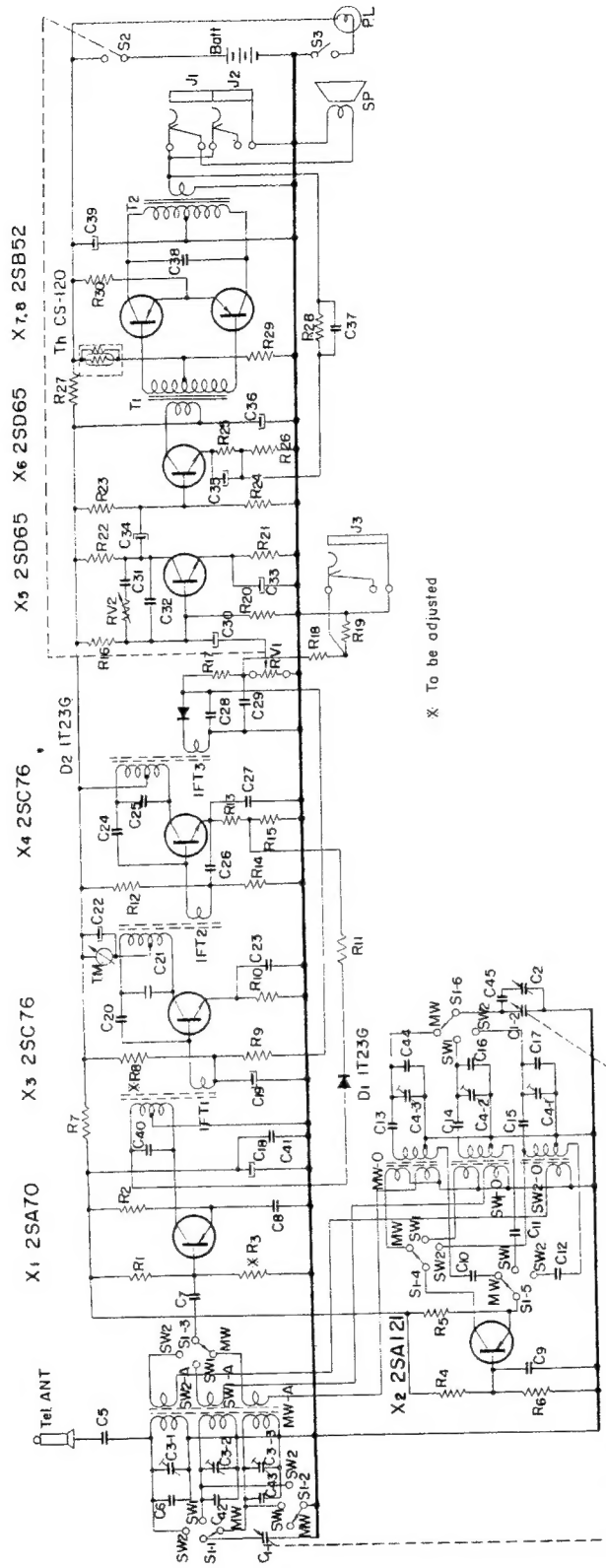
	Checking Point	Adjust	Checking Point	Adjust
MW	620 Kc	Position of MW ANT Coil (MW-A)	1,400 Kc	MW ANT Trimmer (C <sub>3-3</sub> )
SW <sub>1</sub>	2.90 Mc	Position of SW <sub>1</sub> ANT Coil (SW <sub>1</sub> -A)	8.60 Mc	SW <sub>1</sub> ANT Trimmer (C <sub>3-2</sub> )
SW <sub>2</sub>	8.40 Mc	Position of SW <sub>2</sub> ANT Coil (SW <sub>2</sub> -A)	22.4 Mc	SW <sub>2</sub> ANT Trimmer (C <sub>3-1</sub> )

## To Remove the Chassis and Printed Circuit Board from the Cabinet

- (1) Open the Battery Lid and take out the Batteries.
- (2) Remove the two Back Cover Securing Screws.  
It is not necessary to remove the Telescopic Antenna Holding Screw located at the lower right-hand corner of the Back Cover.
- (3) Open the Back Cover gently and detach the white antenna lead at the Telescopic Antenna by pulling out the Pin Plug from the Pin Connector Jack.
- (4) Remove the three Screws (F 2.6 × 5), the two Nuts (2.6φ) and the Back Cover Securing Screw Post shown by red arrows in the figure below.
- (5) If necessary, unsolder the following wires and remove the Twin Earphone Jack and the DET OUT Jack by pulling straight up.
  - a) Two wires (a black and a yellow) at the Speaker Terminals.
  - b) One red wire at the Battery Positive Contact Plate.
  - c) One black wire at the Battery Negative Spring.
  - d) Two wires (a red and a black) at the Tuning Meter.



Schematic Diagram



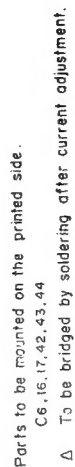
X To be adjusted

## ELECTRONIC PARTS LIST

Part No.	Symbol	Description	Part No.	Symbol	Description	Part No.	Symbol	Description
1-501-039-11	Tel. ANT	Telescopic Antenna	1-203-405-00	R <sub>2</sub>	1.5K $\Omega$ $\frac{1}{8}$ W Carbon	1-101-140-11	C <sub>5</sub>	0.005 $\mu$ F Ceramic
1-401-172-11	MW <sub>1</sub> -A	MW Ferrite Bar Antenna	1-203-339-00	*R <sub>3</sub>	27K $\Omega$ "	1-101-073-11	C <sub>9</sub>	0.02 $\mu$ F "
	SW <sub>1</sub> -A	"	1-203-373-00	R <sub>4</sub>	3.3K $\Omega$ "	1-105-041-11	C <sub>10</sub>	0.01 $\mu$ F Mylar
	SW <sub>2</sub> -A	"	1-203-367-00	R <sub>5</sub>	1K $\Omega$ "	1-105-069-11	C <sub>11</sub>	0.001 $\mu$ F "
1-405-098-11	MW <sub>0</sub>	MW Oscillator Coil	1-203-385-00	R <sub>6</sub>	15K $\Omega$ "	1-101-017-11	C <sub>12</sub>	200PF Ceramic
1-405-097-11	SW <sub>1</sub> -0	"	1-203-360-00	R <sub>7</sub>	330 $\Omega$ "	1-103-041-12	C <sub>13</sub>	330PF Styrol
1-405-096-11	SW <sub>2</sub> -0	"	1-203-394-00	*R <sub>8</sub>	56K $\Omega$ "	1-103-463-12	C <sub>14</sub>	2200PF "
1-403-034-00	IFT <sub>1</sub>	IF Transformer	1-203-378-00	R <sub>9</sub>	5.6K $\Omega$ "	1-103-464-12	C <sub>15</sub>	6800PF "
1-403-035-00	IFT <sub>2</sub>	"	1-203-361-00	R <sub>10</sub>	470 $\Omega$ "	1-131-013-11	C <sub>16</sub>	10PF Ceramic
1-403-036-00	IFT <sub>3</sub>	"	1-203-367-00	R <sub>11</sub>	1K $\Omega$ "	1-101-090-11	C <sub>17</sub>	25PF "
1-423-049-00	T <sub>1</sub>	Driver Transformer	1-203-387-00	R <sub>12</sub>	22K $\Omega$ "	1-121-115-00	C <sub>18</sub>	100 $\mu$ F 6V Electrolytic
1-427-094-11	T <sub>2</sub>	Output Transformer	1-203-360-00	R <sub>13</sub>	330 $\Omega$ "	1-121-104-00	C <sub>19</sub>	10 $\mu$ F 6V "
1-221-094-01	RV <sub>1</sub>	5K $\Omega$ Volume Control	1-203-373-00	R <sub>14</sub>	3.3K $\Omega$ "	1-101-009-11	C <sub>20</sub>	1PF Ceramic
1-513-192-11	RV <sub>2</sub>	20K $\Omega$ Tone Control	1-203-415-00	R <sub>15</sub>	150 $\Omega$ "	1-121-174-00	C <sub>21</sub>	180PF (built in IFT <sub>3</sub> )
	S <sub>1</sub>	Band Selecting Switch	1-203-384-00	R <sub>16</sub>	12K $\Omega$ "	1-105-045-11	C <sub>22</sub>	1 $\mu$ F 15V Electrolytic
	S <sub>2</sub>	Power Switch (RV <sub>1</sub> )	1-203-361-00	R <sub>17</sub>	470 $\Omega$ "	1-131-010-11	C <sub>23</sub>	0.02 $\mu$ F Mylar
	S <sub>3</sub>	Dial Light Switch	1-203-398-00	R <sub>18</sub>	91K $\Omega$ "		C <sub>24</sub>	2PF Ceramic
1-502-067-00	SP	Speaker	1-203-370-00	R <sub>19</sub>	2.2K $\Omega$ "		C <sub>25</sub>	130PF (built in IFT <sub>3</sub> )
1-520-027-11	T.M.	Tuning Meter	1-203-373-00	R <sub>20</sub>	3.3K $\Omega$ "	1-105-045-11	C <sub>26</sub>	0.02 $\mu$ F Mylar
1-518-007-04	P.L.	Dial Light	1-203-412-00	R <sub>21</sub>	390 $\Omega$ "	1-105-045-11	C <sub>27</sub>	0.02 $\mu$ F "
1-507-030-20	J <sub>1</sub> , 2	Twin Earphone Jack	1-203-363-00	R <sub>22</sub>	1.2K $\Omega$ "	1-105-041-11	C <sub>28</sub>	0.01 $\mu$ F "
1-507-050-03	J <sub>3</sub>	DET OUT Jack	1-203-377-00	R <sub>23</sub>	5.1K $\Omega$ "	1-105-041-11	C <sub>29</sub>	0.01 $\mu$ F "
1-528-002-00	Batt.	Battery (4.5V)	1-203-370-00	R <sub>24</sub>	2.2K $\Omega$ "	1-121-101-00	C <sub>30</sub>	30 $\mu$ F 3V Electrolytic
			1-203-358-00	R <sub>25</sub>	220 $\Omega$ "	1-105-044-11	C <sub>31</sub>	0.05 $\mu$ F Mylar
	X <sub>1</sub>	Transistor 2SA70	1-203-351-00	R <sub>26</sub>	5.1 $\Omega$ "	1-105-104-11	C <sub>32</sub>	0.002 $\mu$ F "
	X <sub>2</sub>	" 2SA121	1-203-832-00	R <sub>27</sub>	56 $\Omega$ "	1-121-124-00	C <sub>33</sub>	50 $\mu$ F 3V Electrolytic
	X <sub>3</sub>	" 2SC76	1-203-358-00	R <sub>28</sub>	220 $\Omega$ "	1-121-102-00	C <sub>34</sub>	30 $\mu$ F 6V "
	X <sub>4</sub>	" 2SC76	1-203-374-00	R <sub>29</sub>	3.9K $\Omega$ "	1-121-124-00	C <sub>35</sub>	50 $\mu$ F 3V "
	X <sub>5</sub>	" 2SD65	1-203-351-00	R <sub>30</sub>	5.1 $\Omega$ "	1-121-115-00	C <sub>36</sub>	100 $\mu$ F 6V "
	X <sub>6</sub>	" 2SD65				1-105-045-11	C <sub>37</sub>	0.02 $\mu$ F Mylar
	X <sub>7</sub>	" 2SB52				1-105-277-11	C <sub>38</sub>	0.1 $\mu$ F "
	X <sub>8</sub>	" 2SB52				1-121-115-00	C <sub>39</sub>	100 $\mu$ F 6V Electrolytic
	D <sub>1</sub>	Diode 1T23G	1-151-078-11	C <sub>1-1-2</sub>	Tuning Capacitor, 2 gang	1-101-144-11	C <sub>40</sub>	180PF (built in IFT <sub>1</sub> )
	D <sub>2</sub>	" 1T23G	1-151-069-11	C <sub>2</sub>	Fine Tuning Capacitor	1-101-026-11	C <sub>41</sub>	0.05 $\mu$ F Ceramic
	Th	Thermistor CS-120	1-141-015-00	C <sub>3-1-3</sub>	Trimmer Capacitor, 3 unit	1-101-012-11	C <sub>42</sub>	5PF "
			1-141-015-00	C <sub>4-1-3</sub>	"	1-101-012-11	C <sub>43</sub>	5PF "
			1-101-027-11	C <sub>5</sub>	20PF Ceramic	1-101-012-11	C <sub>44</sub>	5PF "
			1-101-087-11	C <sub>6</sub>	30PF "	1-101-012-11	C <sub>45</sub>	5PF "
1-203-376-00	R <sub>1</sub>	4.7K $\Omega$ $\frac{1}{8}$ W Carbon	1-101-072-11	C <sub>7</sub>	0.01 $\mu$ F "			

\* To be adjusted

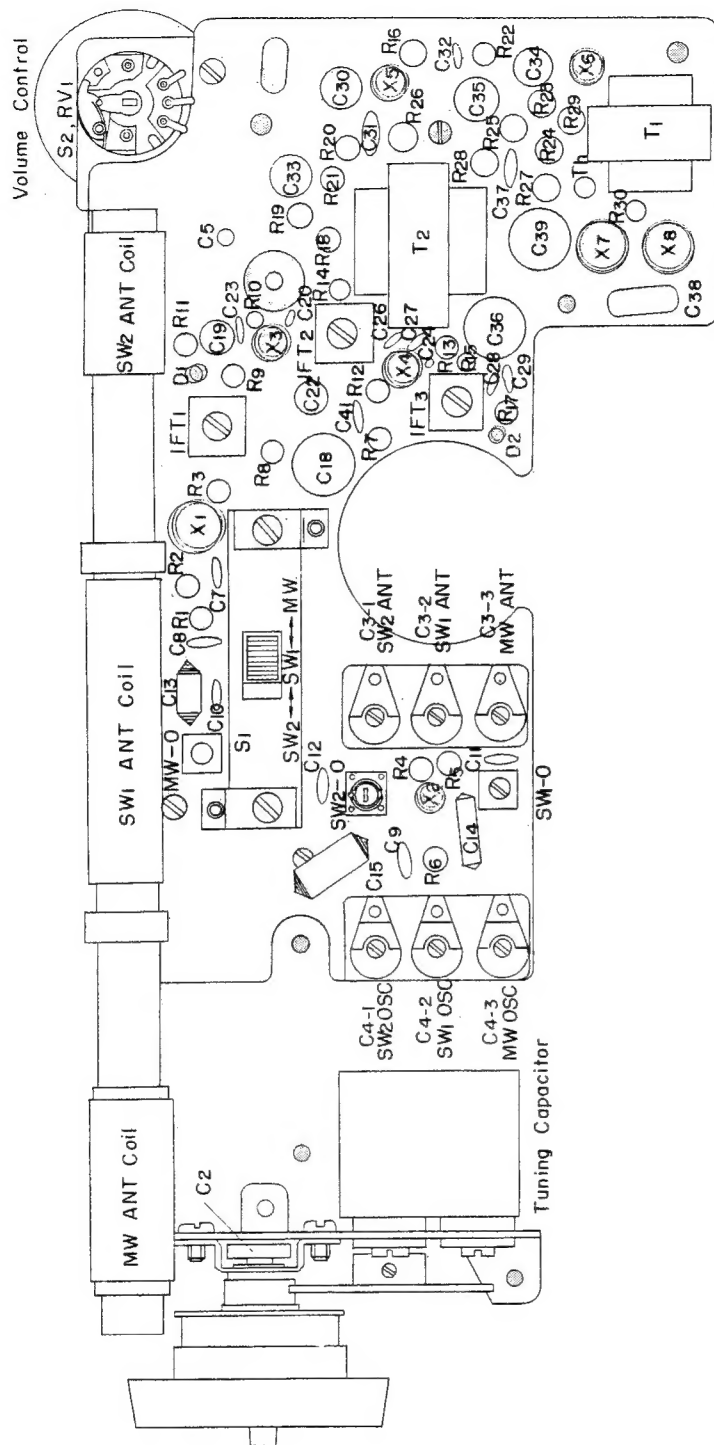
## Printed Side



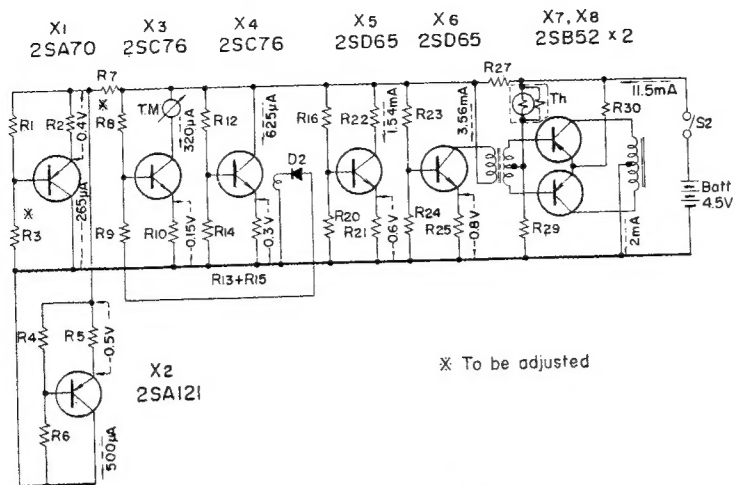
No	PVC Wire Colour	Connection	No	PVC Wire Colour	Connection	No	PVC Wire Colour	Connection	No	PVC Wire Colour	Connection	Tinned Copper Wires	Connection
1	Yellow	Sh-4 ~ C1-2	21	Orange	(K) ~ (K)	21	White	J1 ~ (SP)	31	Orange	VR5 ~ (TONE2)	41	VR5 ~ (TONE2)
2	Red	Sh-1 ~ C1-1	22	White	(L) ~ (L)	22	Black	$\ominus$ B ~ T2	32	Yellow	VR2 ~ (AF N)	42	VR2 ~ (AF N)
3	Black	G ~ C1(6)	23	Red	(bl) ~ (b)	23	Black	J2 ~ T2	33	White	VR3 ~ (L)		VR3 ~ (L)
4	deleted	deleted	24	Yellow	(E) ~ (E)	24	Black	J2 ~ SP1	34	Black	(V) ~ (V)		(V) ~ (V)
5	Orange	(F) ~ (F)	25	Orange	(A) ~ (A)	25	Yellow	J3 ~ SP2	35	Black	(V) ~ (V2)		(V) ~ (V2)
6	White	(L2) ~ (L)	26	White	(I) ~ (I)	26	White	C8 ~ Tel ANT Td	36	Black	GND Lug ~ C1 (6)		GND Lug ~ C1 (6)
7	Yellow	(T) ~ (T)	27	White	T.M. $\oplus$ (4)	27	White	J4 ~ (J)	37	Black	Shield Plate ~ C1 (6)		Shield Plate ~ C1 (6)
8	Black	(O) ~ (O)	28	Black	T.M. $\ominus$ (15)	28	Black	J5 ~ IFT3					
9	Black	(H) ~ (H)	29	Red	$\oplus$ B ~ SW1	29	Black	VR1 ~ IFT3					
10	Red	(bl) ~ (bl)	30	Red	SW2 ~ (B+)	30	White	VR4 ~ (TONE1)					

# Mounting Diagram

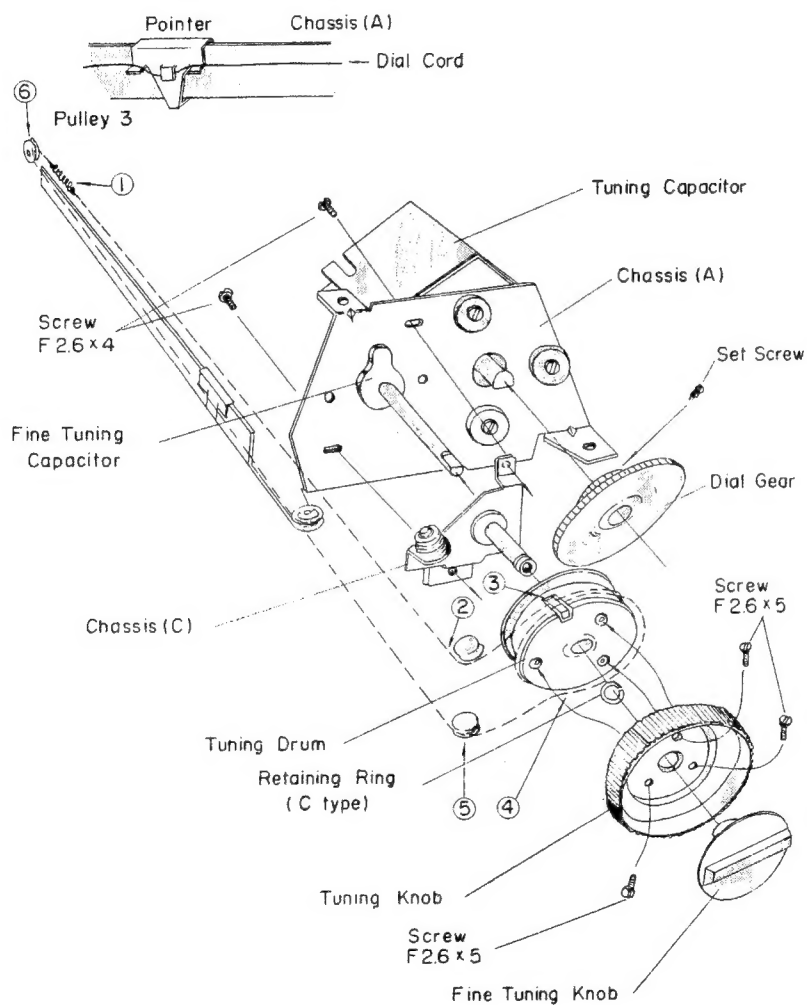
—Parts Side—



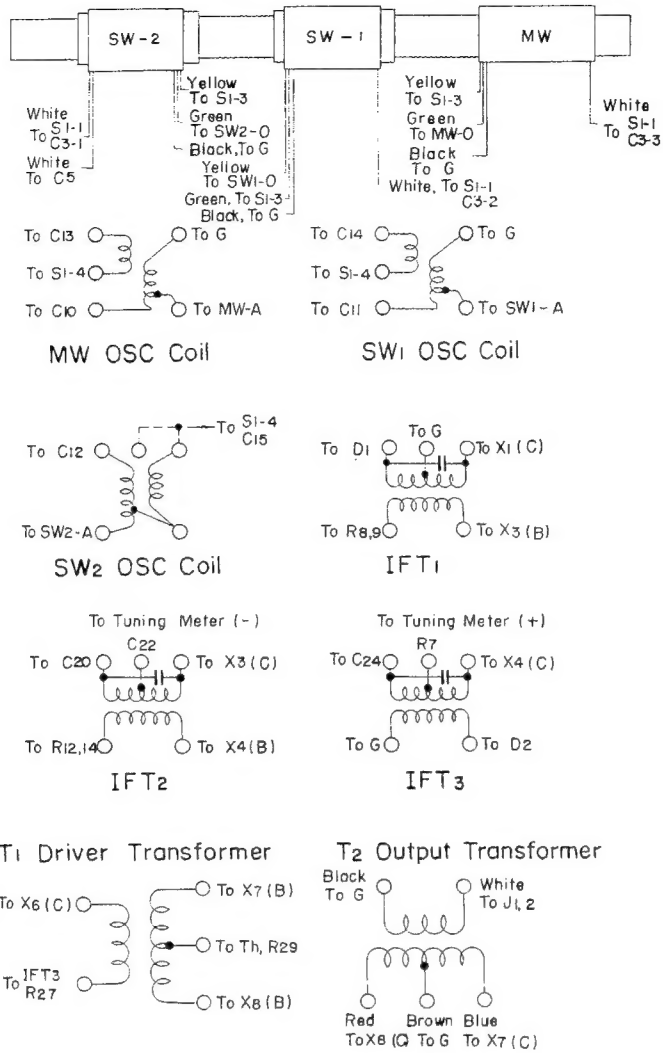
## Current and Voltage Distribution Chart at Zero Signal



## Tuning Mechanism



# SW<sub>2</sub>, SW<sub>1</sub>, MW Ferrite Bar Antenna



T1	Impedance	DC Resistance	T2	Impedance	DC Resistance
Primary	680 Ω	65 Ω	Primary	68 Ω	5.7 Ω
Secondary	1.6 KΩ	176 Ω	Secondary	8 Ω	0.9 Ω

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